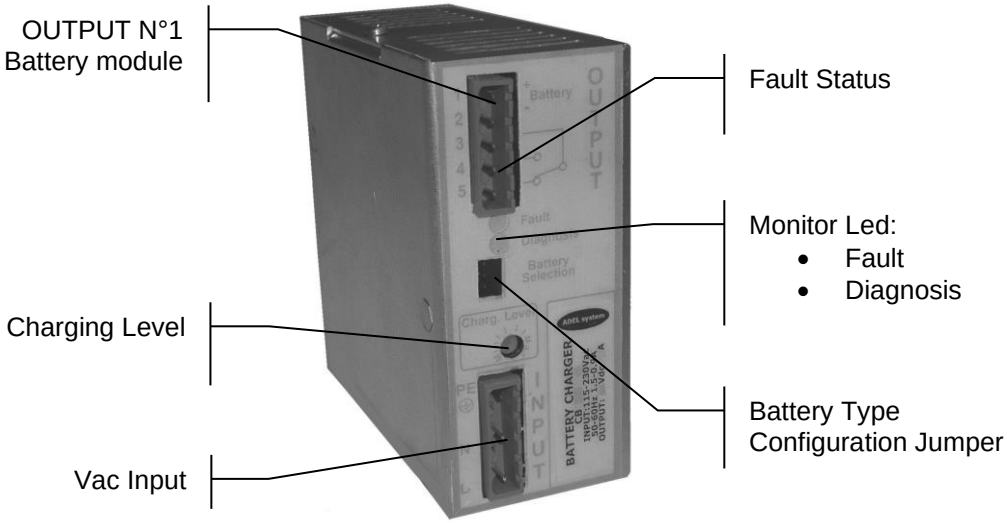
ADEL system

CB304A (15 Cells Pb-Gel, 25 Cells Ni-Cd)

Intelligent Battery Charger

Thank you for having chosen one of our products for your work. We are certain that it will give the utmost satisfaction and be a notable help on the job.

- **General Description:**



Application

CB battery charger is a range of microprocessor-power supplies witch correctly charge open or sealed lead-acid batteries, Gel batteries and Ni-Cd batteries at all-time maximizing performance and life span. Charge the battery in multi-stage principle, Fast and Trickle and automatically the device check the battery quality in a lifetime to prevent any risk of damage to the battery and allow leaving the charger permanently connected. Before begin the operations of installation consult the manual.

- **Mains Characteristic**

- Nominal Input Voltage: 115 - 230 -277Vac
- OUTPUT 1: for connection to Battery
- Fast and trickle battery charge In according to DIN 41773
- Signalling: fault status of the battery
- Overload and short circuit protections
- Power limited Battery output
- Safety isolation in according with EN 60950
- Degree of protection IP20
- Rail DIN mounting

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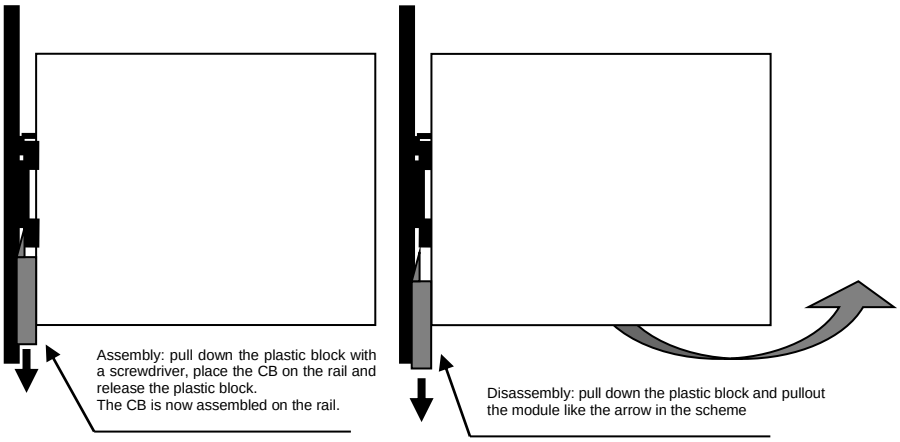
Rail mounting:

- The module must be mounted in vertical position.
- Other modules must have a minimum vertical distance of 10 cm to this power supply in order to guarantee sufficient auto convection.
- Mounting scheme:



Caution: Switch off the system before connecting the module. Never work on the machine when it is live.

Functional Characteristics

Charging Level Current: With trimmer from 20% to 100% of In. Select the max. battery charge current estimated from 10 to 30% of the nominal capacity

Battery Module (Output 1) 1-2 Pin: Battery input.

Low Battery or Battery replacement: In normal condition with battery in good status:
led fault off and contact close (3-4),
Any fault status of the battery: led fault on and contact open (3-4)

Diagnosis LED

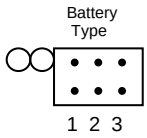
- Normal conditions:
  - Very fast blinking = recovery charging (when the battery is too low, Under 30 Vdc)
  - Fast blinking = fast charge
  - Slow blinking = trickle charge (floating charge)
- Error conditions, Led Fault on and Led Diagnosis:
  - 1 blinking = Battery Reverse polarity battery; Bad input voltage battery.
  - 2 blinking = Battery not connected.
  - 3 blinking = Short circuit battery element
  - 5 blinking = Bad battery.(Internal impedance Bad or Bad battery wire connection)

- **Battery Type Configurations**

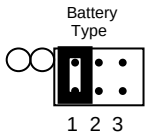
Caution:
Switch off the system before setting the jumper.

Jumper positions for charging:

0. Open Lead (Charge): Trickle =2.23 Fast=2.40/cell

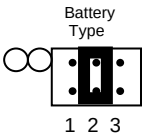


1. Sealed Lead (Charge): Trickle =2.25 Fast=2.40/cell

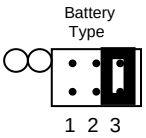


N.B. 15 cells Lead Battery or Gel Battery.

2. Gel Battery (Charge): Trickle =2.30 Fast=2.40/cell



3. Ni-Cd Battery (Charge): Trickle =1.35 Fast=1.50/cell



N.B. 25 cells Ni-Cd Battery.

Notice:

For Ni-Cd Battery the End-of-charge is the detection of "flat" profile. If flat profile is detected fast charge is terminated after 2 hours. General end-of-charge timeout set to 16 hours. Trickle charge is pulsed with a duty cycle of 2% (20msec/sec). Charging current must be set at least at 30% of nominal battery capacity (0,3 C).

- **Cable connection**

The following cable cross-sections may be used:
At the Input: 0.2÷2.5 mm^2 rigid / flexible
At the Output: 0.2÷2.5 mm^2 rigid / flexible
Strip the connection ends: 7mm
Input: The input connection is made by the screw connections L, N, PE ⏚.

- **Protection**

On the primary side: the device is equipped whit a internally fuse T 4 A/250Vac. If the internal fuse is activated, it is most probable that there is a fault in the device. If happen, the device must be checked in the factory

On the secondary side Battery and load: The device is electrically protected against short circuits and overload.
Inversion polarity: the module is protected against inversion of battery polarity.
Over current and output short circuit: the unit limits the output power at max. 108W in normal rating.
Battery Test: Automatic. Check polarity and battery. Every 4 hours in trickle charge, make the test of the battery quality. The fault is signalized with relay commutation and diagnosis led blinking.

Characteristic curve

- **Output current**

Internal temperature is electronically controlled. Therefore, battery current is continuous as long as temperature does not exceed the established limit.

Short circuit and overload

The output current to the battery is selected with the Charge Level trimmer. The maximum power – load of 108W limits the current to the battery, in 187-264 Vac input range. In 93-132 Vac input range it is necessary to consider the derating of 60 W max specified in technical features.

Thermal behavior

The device supplies the nominal output current at ambient temperature of up 40°C. For ambient temperature of over 40°C, the output current must be reduced by 1% per °C increase in temperature. Max 50°C.

- **Standards and Certifications**

Electrical safety

The device must be installed in according with EN60950. The device must have a suitable isolating facility outside the power supply unit, via which can be switched to idle. Sicurezza EN IEC 62368-1

General Standard

Immunity in according with EN50082-2, level 3, class B
Radio interference suppression in according with EN 55011 class A (industrial areas)

Input Data

Nominal Input Voltage (2 x Vac)	115 – 230 -277Vac
Input voltage range	90 ÷ 305 Vac
Inrush Current (Vn – In)	≤ 16 ≤ 5 msec.
Frequency	47 ÷ 63 Hz
Input Current (Nominal input Voltage)	2.4 – 1.2 A
Internal Fuse	4 A
External Fuse (recommended)	6 A

Output Data

Output Voltage Battery Bulk Charge / Nominal Current	Max: 36 V Pb 37,5V Ni-Cd
Output Voltage Battery Trickle Charge / Nominal Current	Max: 34.5 V Pb 33,75V Ni-Cd
Charging. Max I_{batt} < 40°C (In)	4 A
Charging. Max I_{batt} > 40°C (In)	3 A
Adjustment range of charge (In adj)	20 ÷ 100% In
Type of charging characteristic	U/I
Suggested Battery Type up to (for recharging in 10 - 14 hours)	50 Ah
Switching on after applying mains voltage	1.8 sec. Max
Current max	3 A
Efficiency	≥ 81 %
Over Load protection	Yes
Reverse battery protection	Yes
Fault relay contact characteristics	1 A – 30 Vdc
Derating at 115 Vac	60 W Max

Climatic Data

Ambient Temperature (operation)	-10 ÷ +50 °C
Ambient Temperature (Storage)	-25÷ +85 °C
Humidity; no moisture condensation	95 % a 25°C

General Data

Isolation Voltage (Input/ output)	3000 Vac
Input ground insulation	1605 Vac
Electrical safety	EN 60950
Degree of protection	IP 20
Protection class	I with PE connected
Dimension (w-h-d)	45x110x105
Weight	0.35Kg approx
In according to EMC 2014/30/UE and Low voltage 2014/35/UE. Safety EN IEC 62368-1	CE

All specification are subject to change without notice